Short-Term Energy Outlook PC Model

Energy Information Administration
Washington, DC 20585

http://www.eia.doe.gov/steo

Summary

The 32-bit version PC version of the Short-Term Energy Model, the PC-STEO, presents EIA's latest monthly national energy forecast in an Excel-like presentation for information, analysis and reports. Behind the scenes the PC-STEO includes a simulation engine which will rapidly update the forecast to reflect any changes you make in the data. Based on a multi-sheet Excel spreadsheet, you can make significant changes in the way information is displayed, and you may also customize the results with additional forecasting equations.

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I. Introduction

The Energy Information Administration (EIA) prepares monthly, short-term energy supply, demand, and price projections for publication on the Internet using a SAS based modeling system. Backing up the forecasting system is EIA's extensive energy data collection and publication process augmented by literature search and contacts in the energy industry. Forecasts are published at **http://www.eia.doe.gov/steo**

The forecast period for the *Outlook* extends up to 24 months, from the current month to the end of following year.

❑ Values for the current month and quarter are all preliminary EIA estimates. Some monthly values for petroleum supply and disposition are derived in part from weekly data reported in the *Weekly Petroleum Status Report.*   Other values are calculated from model simulations using the latest exogenous information available (for example, electricity sales and generation are simulated using actual weather data).

❑ The historical energy data, compiled in the database, are mostly EIA data regularly published in the *Monthly Energy Review, Petroleum Supply Monthly*, and other EIA publications.

The modeling system is driven by three sets of assumptions: - estimates of key macroeconomic variables, world oil prices, and assumptions about the severity of weather. Macroeconomic estimates are produced by DRI/McGraw-Hill but are adjusted by EIA to reflect EIA assumptions about the world price of crude oil, energy product prices, and other assumptions which may affect the macroeconomic outlook.

The PC-STEO is based upon EIA's model, extracted from the SAS system, and re-vamped as a windows application for the PC. For more details consult the technical details section.

A.   *Help from EIA*

Help on running the model and changing assumptions can be had from:

The PC Short-Term Model System	John Pearson -- (202) 586-6162
Model Assumptions and Forecast	Dave Costello -- (202) 586-1468

Help with a specific aspect of the Short-Term Forecast can be had from the following EIA specialists:

|	
Model Assumptions and Forecast	Dave Costello -- (202) 586-1468
Macroeconomic Outlook	Kay Smith -- (202) 586-1455
World Oil Market/Oil Price Projections	Doug MacIntyre -- (202) 586-1831
U.S. Energy Prices	Neil Gamson -- (202) 586-2418
Transportation and Fuel Oil Modeling	Michael Morris -- (202) 586-1199
Summer/Winter Outlooks	Michael Morris -- (202) 586-1199
	John Zyren -- (202) 586-6405
	Michael Burdette -- (202) 586-6649
Refinery Modeling/U.S. Oil Balance	Tancred Lidderdale -- (202) 586-7321
U.S. Oil Production	A.H. Payne -- (214-720-6188)
Natural Gas Supply and Demand Balance	Dave Costello -- (202) 586-1468
Natural Gas Production	Hafeezur Rahman -- (214-720-6162)
Coal Supply and Demand Balance	Elias Johnson -- (202) 586-7277
Coal Production and Trade	Byundoo Hong -- (202) 426-1126
Electricity Supply and Demand Balance	Dave Costello -- (202) 586-1468
Nuclear Output	Diane Jackson -- (202) 426-1176
Hydroelectric Output	Rebecca McNerney -- (202) 426-1251
Electricity Net Imports	Rebecca McNerney -- (202) 426-1251
Non-utility Electric Output/Fuel Use	William Liggett -- (202) 426-1139

B.   *The Short-Term Outlook Home Page*

The web icon button and the Tools menu, both try to open your currently registered Internet web browser and switch to EIA's Short-Term Outlook home page at **http://www.eia.doe.gov/steo**
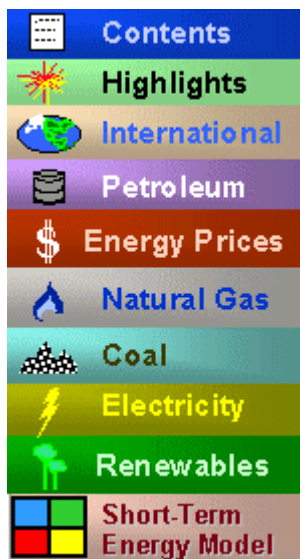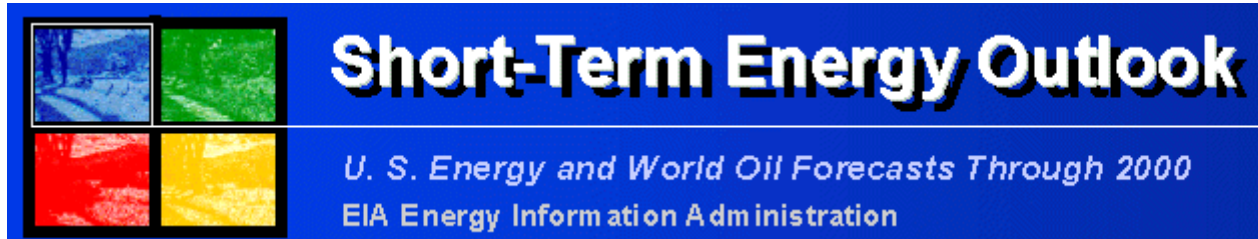
Our home page contains the current monthly Short Term Energy Outlook

Links to recent analyses using the model links to model updates, and links to data updates from all EIA publications.

Links to all documentation for the model and estimates.

Links to EIA's extensive data collection and analysis output.

http://www.eia.doe.gov

II. A Quick Tour Of The PC-STEO

The PC-STEO model opens with a view of the current EIA base case forecast displayed in annual frequency and standard units.

There should be two rows of buttons on display, both of which can be hidden by the view menu. The top row contains all controls for the model. The second row contains formatting buttons for the spreadsheet.

| Gasoline | Jet Fuel | Fuel Oil | Natural gas | Electricity | Coal | Petroleum | All Prices | Macro Data | A | B | C |

| D5 | 7270.384765625 |

	A	Annual/Standard Units	C	D	E	F	G
1	Motor Gasoline Analysis Page		See the Read Me Panel on the Right!				
2							
3	DATEX	Date [AD]	1996	1997	1998	1999	2000
4	RACPUUS	Refiner acquisition cost for crude oil (composite) [	$20.74	$19.04	$12.55	$11.56	$14.24
5	GDPQXUS	Real Gross Domestic Product (Billion $1992)	6995	7270	7550	7808	7936
6	YD87OUS	Real Personal Disposable Income (Billion $1992)	5,043	5,183	5,346	5,521	5,664
7	CICPIUS	Consumer Price Index, All Urban Consumers (Inde	1.5698	1.6063	1.6314	1.6642	1.7068
8	MGTXFUS	Federal Motor fuel tax on motor gasoline ($/Gal)	$0.18	$0.18	$0.18	$0.18	$0.18
9	MGTXSUS	State motor fuel tax on motor gasoline ($/Gal)	$0.20	$0.20	$0.20	$0.20	$0.20
10	MGTXUUS	Motor gasoline fuel taxes combined state and fed	$0.38	$0.38	$0.38	$0.38	$0.39
11	ZSAJQUS	Number of Days in a Month (Days)	366	365	365	365	366
12							
13		Highway Travel Indicators					
14	MPG	Miles per gallon for all vehicles (Miles/Gallon)	20.36	20.81	20.87	20.94	21.00
15	CPM	Real fuel cost per mile (C/Mile)	3.90	3.73	3.15	2.98	3.17
16	MVVMPUS	Vehicle Miles Traveled (Mill. Mi/Day)	6,782	7,015	7,179	7,385	7,548
17							
18		Prices					

The screen in this view is a single grid of data cells that organizes rows of assumptions and results in an order that you can choose. **Blue numbers** are always all data. **Red numbers** are forecast, or contain aggregated data and forecast numbers. The tab buttons at the top of the grid select different sheets and are equivalent to the tabs at the bottom of the equivalent spreadsheet format sheets.

Assumptions: either model inputs (exogenous)[1], or calculated (endogenous[2]) but with adjustable

[1]**Exogenous Variables**
are those variables whose values supplied as givens from an external source. For instance, in The Short-Term Energy Model the future world oil price over the forecast term is an exogenous assumption rather than a calculated output.

[2]**Endogenous Variables**

add factors, are indicated by the edit button having a white background. You may edit any data on the spreadsheet by typing in your own data, however, **only** editable data will stick. i.e. cell for which the edit button is active. Essentially the other data -- results -- are protected. This is indicated by the cursor changing to a stop sign for 1/2 second. If you do edit them their values will be replaced at the next calculation.

The **Results** are the remaining rows, some are from the model directly, and others are side calculations that you may have added. In the simplest cases they could be stock draw or margin calculations. Again, if you try to edit the results, the cursor will change to a stop sign for a fraction of a second, and any changes will be over-written when you recalculate.

Model Rows: in both cases, assumptions or results, the rows with a code in column A are exclusively model rows that are either inputs to the PC-STEO model, or results from the PC-STEO model

The **Sheets** show STEO model variables explicitly in Column A, their label in B and the data values in C.. The sheets are organized by STEO model -- gasoline, jet fuel etc.. but the contents are arbitrary and you may add any variables you wish to any sheet. The final tab is set to show a **Read Me** text file of pointers on cell editing.

The spreadsheet is actually in an Excel 95 format and can be read, edited and rewritten in Excel, Lotus or Quattro, as long as it is saved as an Excel 95-format file. Most spreadsheet features can be read or written including formats, formulae and range information. However graphics of any kind are ignored on input and will not be saved in the output.

The menu settings and buttons control the appearance and behavior of the PC-STEO. Most are standard windows features with yellow hint labels that explain their purpose.

The **View Menu** controls which of the two button bars at the top and status windows at the bottom of the screen are visible.

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are those variables are calculated by the model. For instance, in the formula $Y = ax + b$, Y is endogenous. Because the values are calculated given a, x and b. Alternate values for endogenous variables supplied by the user will be overwritten by the model. For this reason, new values must be assigned indirectly, by adding to or subtracting from a secondary variable, the **add-factor**, for those endogenous variables that have been assigned add-factors (or the related multiplication factors). This process takes place transparently to the user.
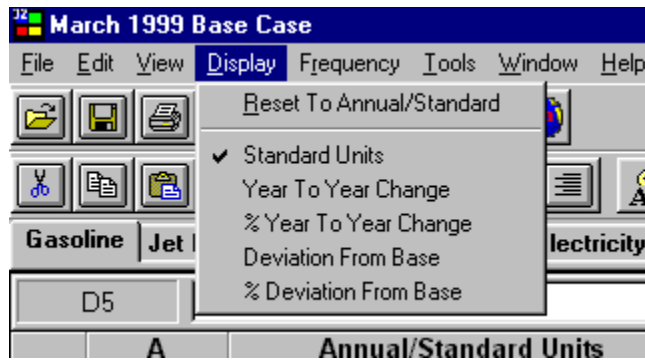
The **Display Menu** provides one control of the display aggregation of the forecast. Its options control whether the forecast is displayed in Standard Units, or in some variation about history or a base forecast. All data may be viewed in several different ways:

❑ **Standard Units**
Depending on the variable, standard units are either gallons (heating oil, gasoline, and jet fuel), barrels (crude oil), millions of cubic feet (natural gas), billions of kilowatt-hours (electricity).

❑ **Year Over Year Change**
Difference in units for the variable between one period's value and the former year's period value for the current aggregation setting.

❑ **Percent Year Over Year Change**
How much a variable changed in percent between one period's value and the former year's period value for the current aggregation setting.

❑ **Deviation from Base Case**
The difference in standard units from the base case value for the period in question.

❑ **Percent Deviation from Base Case**
How much the calculated value varies in percentage terms from the base case value.

You may change the spreadsheet cell values in any aggregation or frequency setting if you remember what that setting means. For example changing an oil price from $11/Bbl to $20/Bbl is the same as adding $9 when the display shows deviation from the base case, or you could add 90% to it when the display shows percent deviation from the base case.

The **Frequency Menu** controls the frequency aggregation of the forecast. Its options allow you to choose from annual down to monthly display in the spreadsheet.

Note the convention for displaying aggregated results: if you change a value for either a quarter or a year (as opposed to a month) the program estimates what the monthly values would have to be to obtain your value as the average for the period. For this reason, monthly values will not always be uniform when the Frequency is changed back to monthly from the quarterly or annual view. This gives you a quick way of setting 12 values -- set them in annual frequency.

Finally all of the main menu settings are repeated on the right-mouse-button context menu including one very useful one to find the current month.

A. *Editing & Recalculating The Forecast*

Click on the red assumption cell containing the data to be edited. If no stop sign appears then it is editable. i.e. either it is a model input, or there is an add factor mechanism defined for this variable.

❑ Type in a new value or values in the cells, or

❑ Click the data edit button and a special data-editing window will appear.

Changes are automatically replicated to all model sheets on which the variable appears, so the choice of sheet is not important.

Finally, click the **calculator** button , or the **F9** key, or use the menu **Tools/Recalculate Model**. There will be a pause (depending on the speed of your computer), the simulation engine will recalculate and then all sheets will be rewritten to show the revised forecast.

One of two things will have happened

❑ Your new spreadsheets will show the revised forecast, or

❑ There is no change! In this case you tried to change a calculated (endogenous) variable and your changes were ignored and simply overwritten by the existing forecast.

Assuming that your change was appropriate and you have a new forecast, you can make more changes, flip the display to difference to see the changes, graph, print or save the results as a spreadsheet.

B. *Quick Graphs*

To create a quick graph of one or more rows of the data and forecast, select several cells, at least one in each interesting row and click the **graph** button or the menu **Tools/Graph.**
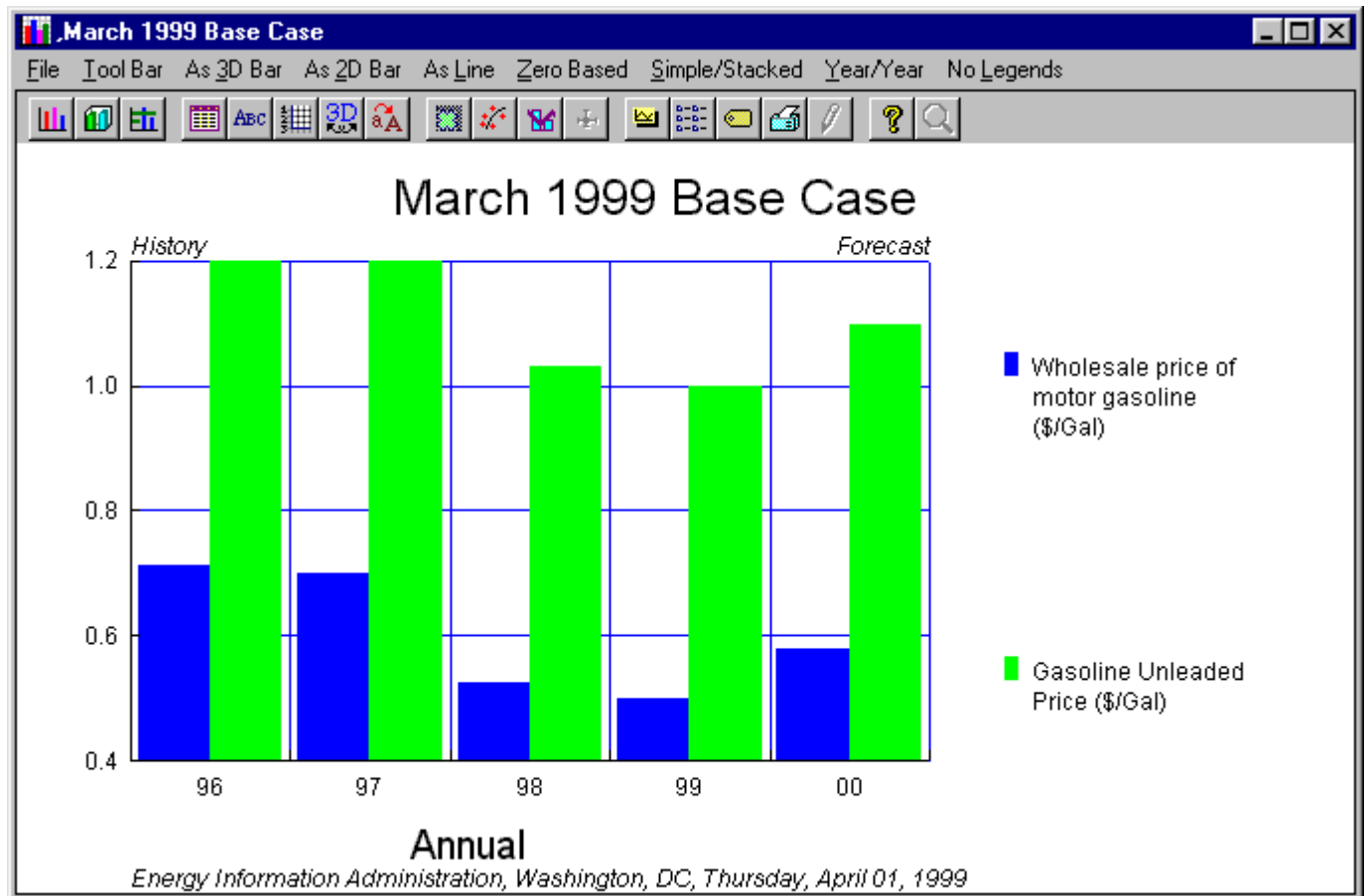
Most of the features on the graph are editable from the graph tool bar and once the graph is chosen its format can be saved as a template for all further graphs at that frequency - monthly, quarterly or annual. See the advanced graphics section for details.

- ❑ *As 3D Bar, As 2D Bar, As Line options* provides quick access to the more frequently used graphic adjustments.

- ❑ *Zero/Float* provides either a zero-based vertical axis, or a floating vertical axis. The floating axis option emphasizes the variation in the data, while the zero-based option preserves a more statistically correct view of the data.

- ❑ For monthly data, *Year/Year* displays the first series selected as 5 successive 12-month series to compare years.

- ❑ *Legends/No Legends* displays the same graph without legends so as to maximize the detail.

Finally the graphic can be saved in a variety of formats.

C.   *Printing Results*

To print the spreadsheet use the **file/print** feature or the keys **ctrl-P**. This will print the entire spreadsheet to the default printer.

> **File/Printer Setup**   Will select an alternative printer
>
> **File/Page Setup**   Gives you control over the printed output format
>
> **File/Print Area**   Sets the print area to be the selected range on the current active sheet. Only one sheet at a time can be printed

D.   *Comparing Scenarios*

The comparison feature allows you to select one or more rows of the forecast and compare them to the same rows of our earlier forecasts. You may also add your own comparisons

To use this feature, select cell for one or more variables to highlight their data, then press the

[ ] compare button or use the Tools/Compare menu option or use the right-mouse-button context menu.

	Variable	1996/01	1996/02	1996/03	1996
1	Refiner acquisition cost for crude oil (composite) ($	$17.74	$17.95	$19.76	$
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					

Dec98   Jan99   Feb99   mar99

Comparison of Case/Scenario Data

Sheet1

The result is a window containing a new monthly grid with the selected rows from the forecast spreadsheet.

The buttons represent published **EIA Base Cases,** each of which may contain one or more

scenarios.

First what are cases versus scenarios? As used here, a **Case** is a published EIA quarterly base case, while a **Scenario** is a variation about a particular base case. For example, starting with the base case you may generate a cold weather or a high price scenario. Since these are all associated with this base case it makes sense to store and access the information together. More specifically:

❑   A button represents a case and its collection of scenarios, each being a variation about a particular base case. It also represents a table in the **STM32.MDB** database provided with this simulation.

Each button contains at least one scenario called the Base Case. Clicking on a case button will perform a search in the matching table, for variables that match those currently showing on the comparison grid.   The results of the search are added to the grid and sorted to produce a grid of comparable results.

❑   If the variable XYZ is showing on the grid, then clicking **March99** will retrieve all of the scenario versions of variable XYZ from the **March99** base case and present them side by side for comparison, graphing or to be saved.

One or more case buttons may be clicked and the result is shown below which compares oil price assumptions from the current forecast with corresponding data in the base case previous months.

Dec98	Jan99					
Feb99	mar99		Comparison of Case/Scenario Data			
	Variable	**1996/01**	**1996/02**	**1996/03**	**1996** ▲
1	Refiner acquisition cost for crude oil (composite) ($	$17.74	$17.95	$19.76	$
2	Feb99 Base Case February 1999	23.62	21.65	19.82	18.36
3	Jan99 Base Case January 1999	23.62	21.65	19.82	18.36
4					
5					
6					
7					
8					
9					
10					
11					

◄ ► \ Sheet1 /   ◄ ►

In each case the data for the current variable will be shown, followed by the data for the comparable scenarios. The label for the comparable variables is taken from the scenario name entered when the scenario is saved as shown below. The months in the forecast are automatically matched.

The menu options are as follows:

❑   *File* allows the addition of a new case, or scenario to an existing case, or printing the results.

❏ *Edit* will copy highlighted rows to the clipboard for use in a spreadsheet or other document.

❏ *Display* will show either the data, the difference of the data and each scenario, or the percent difference.

❏ *Graph* will graph the selected rows.

See also Adding a Scenario or Case, and Managing Cases in the Advanced Features section.

E.   The Data Editing Tool

Although you can enter data directly into the spreadsheet, the data editing tool provides an alternative tailored way of adjusting a selected range of the forecast in a specific strategy -- such as applying a growth factor to a range of cells.

Select a range of cells, click the edit key [icon] and if it is editable, the data edit window appears.
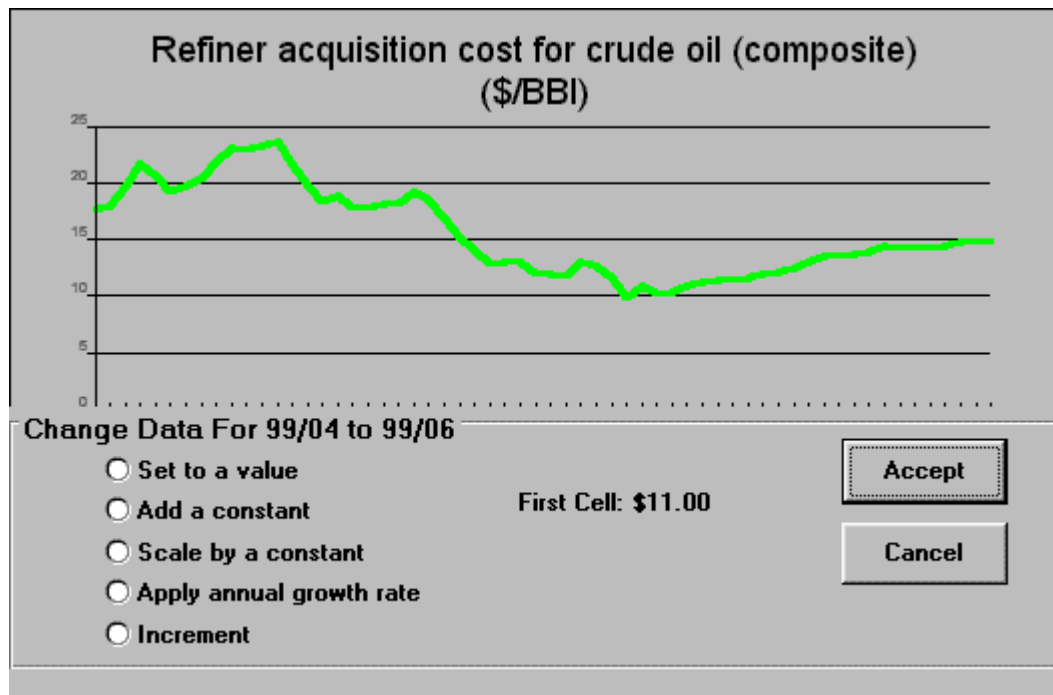
The data-editing window works on either one, or a range of cells for a single variable listed on the **detailed** view. The underlying cells must be for exogenous variables, or variables with add-factors that otherwise could be changed (i.e., no historical data or purely endogenous values can be edited). After marking the desired range for a single variable, click on the data edit icon (or use the right-mouse-button context menu) to bring up the editing window. There are five possible choices:

❏ **Set to a value:** sets all cells to a specific value.

❑ **Add a constant**. adds a given value to each cell value.
❑ **Scale by a constant**. multiplies all cell values by a given constant.
❑ **Apply an annual rate of growth**. applies a given annual rate of growth to the cell values.
❑ **Increment**: which opens up an increment window to inch the values in the range up or down by an increment.

Make any changes to the selected cell values, click **Accept** and the values are returned to the spreadsheet.

Note that all changes are made upon the monthly values for the range, whether or not the user-selected data frequency has been set to monthly.   The graphic displays the values for the variable before and after the proposed change.

III. Advanced Topics

A. *Reformatting The Spreadsheet*

The model uses the file **stm32.xls** in its application directory as a template for the model layout. It is an Excel 95 format file and cannot be read in any other format.

Spreadsheet Layout Conventions
The spreadsheet assumes a layout convention that are currently inflexible.

Column A is always reserved for the STEO variable codes listed in the help file These are model rows!
Column B is reserved for descriptive labels and units for a variable.
Column C is the first data period, for example 1996 when in annual mode.
Column D continues the data etc.

You may edit each sheet to add and subtract or move variables. Save your version to a backup since the next installation may over-write the stm32.xls file.

Variables can be moved by moving the entry in column A. On model load, the entries in columns B will be updated and the stored spreadsheet format will be used for all other rows. Thus the variables will always be consistent with the model definitions.

Reformatting A Row
To reformat a row, simply reformat column C and D to your liking and click the recalculation button. This automatically updates the stored format for that variable and it is used on all other rows in which that variable appears.

The format in column D is used as the format for all other cells in that row.

B. *Spreadsheet Views*

Freeze/Unfreeze Spreadsheet
The menu instruction **Window/Unfreeze** will unfreeze the top rows and left-hand columns protected on each spreadsheet. This will allow you to edit the layout within the model. A spreadsheet program provides more flexibility, but if you edit the file **stm32.xls** in this way remember to save it in Excel-95 format.

Split Screen
The menu instruction **Window/Split** will divide the spreadsheet into two independent sections, which can view different sheets simultaneously.

The tab buttons apply to whichever window has focus. Thus to view two different fuels:

❑ Select the first fuel tab to view it, then choose **Window/Split** and click on the lower window, then click the alternative fuel tab.

❑ Any data changes in one window are automatically replicated to all other sheets and both windows.

❑ You may select cells from each view and graph data on two different sheets.

Selecting Comparisons from two sheets will be part of further enhancements of the comparison feature.

Additional information on the Display and Frequency settings is in the Quick Tour Section.

C.   *Adding Variables To The Spreadsheet*

The spreadsheet **stm32.xls** is a template for the model layout. It is an Excel-95 format spreadsheet readable by most recent version spreadsheet programs and thus is easily editable. However graphs and other spreadsheet specific features are ignored on input and not written back to the output template. In addition, external references to other spreadsheets are ignored.

When the PC-STEO starts, it reads and analyses the spreadsheet, identifying and records the position of every variable code in column A of every sheet. Any variables that are unrecognized are ignored. The sheet names become the tab names.

Most importantly, the variables are crosschecked against a database of variables in **stm32.mdb.** This database defines the characteristics and format of the display, and these characteristics are set to the model characteristics. They cannot be edited independently.

However, it is easy to add variables and change the layouts

Copying an Existing Variable
The easiest scheme is to find the variable you want on some other sheet and copy it to where you want to see it. This can be done several ways.

❑ Edit the spreadsheet in a spreadsheet program and copy an existing variable from one sheet to another, then save the spreadsheet in Excel 95 format and restart the model. The variable will appear in the new position. The spreadsheet is a template for the model layout.

❑ Click on any cell in a row of interest, and using the model menu choose **Edit/Copy Row Definition**, then move to the sheet/row of interest and click on a cell in that row and use the menu **Edit/Paste Row Definition.** If the row is occupied in column A you will be asked to verify this, otherwise the variable is copied and the spreadsheet is refreshed to show the new layout.

❑   After adding a variable you may want to reformat the C and D cells in the row and recalculate the spreadsheet since new variables don't have a built in format memorized.

Alternatively you may edit the properties of any row using the right-mouse-button context menu.

Adding A New Variable
All pre-defined new variables are listed in this document either in the appendix or on the **variables button** above. You may add any new variable from the existing list of definitions. To do this use the edit properties feature for any empty row, with the **New Variable** Tab.

D.   *Editing Variable Properties*

Use a right-mouse-click to reveal the context menu and choose **properties** to show this property form..

For model variable rows (with a code in column 1) the properties appear as in this example. The first property tab is a read-only listing of the settings for the variable in this row, in this case RACPUUS explaining what they mean:
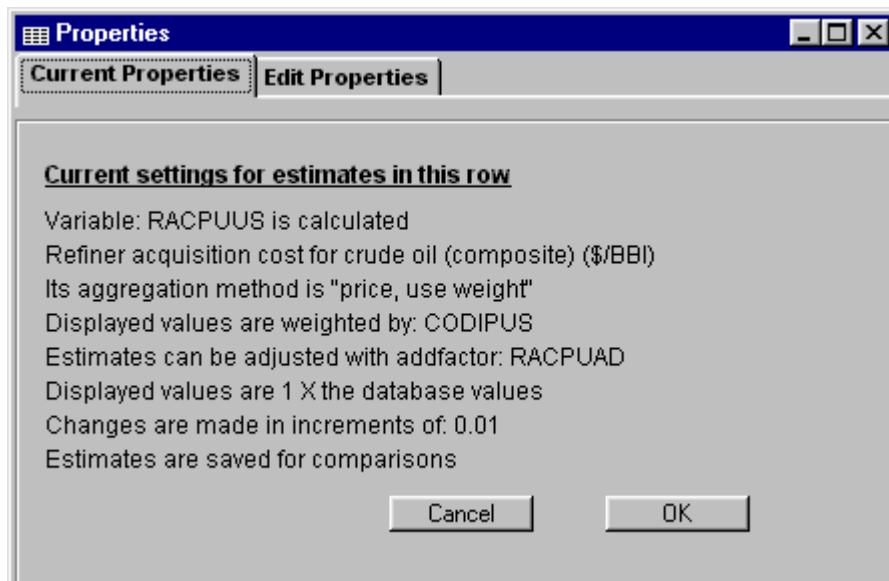
The first two lines repeat the information in the variable's row on the spreadsheet.

The aggregation method describes how the variable is aggregated for different frequency's by the aggregation type.

Aggregation Type: Defines the way the variable is aggregated from monthly data to quarterly, semi-annual or annual data as changed by the menu Display button. These are characteristics of the variable definition and cannot be changed.

❑   Monthly, sum to period: The model reports the variable value in units per month. When

aggregating to quarterly or annual data, the monthly data is summed. For instance, heating degree-days is reported in heating degree-days per month. When aggregating to quarterly data, the three months representing the quarter are summed and the figure displayed is heating degree-days per quarter.

❑ Daily, sum to period: The model reports the natural gas or electricity data in units per day. When aggregating to monthly data, the figure is multiplied by the number of days in the month. Similarly, the monthly figures are summed when quarterly data is displayed.

❑ General, use daily average: The model reports the variable value in units per day. When aggregating to monthly data, the variable reported by the system is displayed. To display quarterly or annual data, the average daily value over the time period in question is displayed. For example, the system reports jet fuel consumption in 1000 barrels per day. When monthly data is showing, the value reported by is displayed. When quarterly data is showing, the average value during the three months of that period is displayed. Thus, the units of the displayed value will still be 1000 barrels per day.

❑ Price, weight with variable: This aggregation type applies to price variables such as the price of jet fuel. It is similar to the general average, except that the variable is weighted by the quantity of fuel consumed during the period in question. If this aggregation type is selected, the variable to weight the price by must be specified in the "Weight" field.

❑ Stock, end month: This aggregation type applies to stock variables. If quarterly data is displayed, the value displayed will be the value of the variable in the last month of that quarterly period. Similarly, if annual data is displayed, the value displayed will be the value of the variable in the month of December.

❑ Draw, use average: This aggregation type applies to stock draw variable. Draw variables calculate the amount of fuel withdrawn from stocks per day. If the variable is a draw variable then the stock variable which it measures the changes in must be specified in the "weight" field. The variable displayed in the aggregation will be an average weighted by the number of days in a month.

The **Add Factor** is an additive adjustment variable in the equation that defines its parent variable. A variable can only be adjusted if it is either an input or has an add factor. Thus RACPUUS is calculated as a composition of crude inputs but it has an add factor RACPUAD and thus it is editable on the spreadsheet.

The variable **Weight** is used to calculate aggregates. For example a variable's weighted quarter value is the sum of the three monthly variable values each multiplied by the weighting variable's value, divided by the sum of the monthly weights. Weighting is done automatically for each aggregation.

The **Edit Properties** tab allows only three characteristics to be changed, the variable units, scale and the variable increment. The others are specific to the variable's definition in the model and cannot be changed independently.

❑ Since **Display Units** and **Scale** are pre-defined the allowable changes are coupled with the display scale factor. For example database values of Cents/Gal can be changed to $/Gal if the database scale factor is also changed by 100. The alternatives are listed in the Units Guide. For example each petroleum demand variable offers two alternatives, MMBD and MBD that differ by a scale factor of 1000.

❑ **Increment**: The amount by which the variable is adjusted in the display when the user clicks on the up arrow or down arrow in the **edit tool**. If the up arrow is clicked, the increment is added to the variable value. If the down arrow is clicked, the increment is subtracted from the variable value. This can also be set dynamically by the Edit Tool.
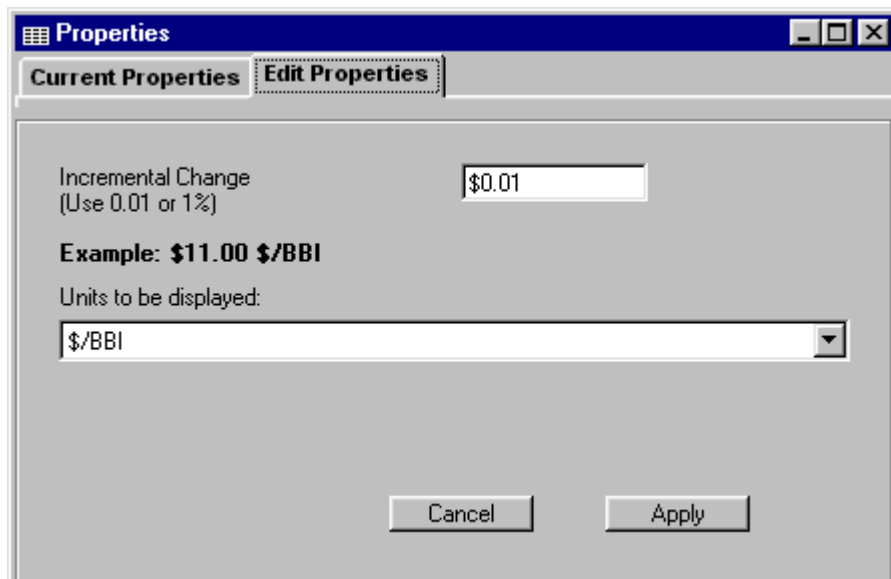
New Variables
New variables can be added by selecting an empty row and adding the variable from the
properties **New Variable Tab** which automatically appears as an alternative to the existing
variable properties.
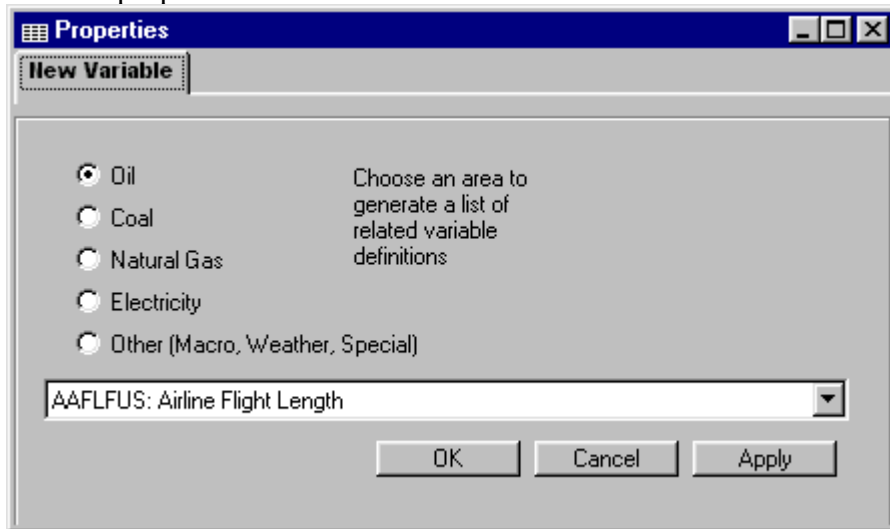
Select a fuel area and the drop down list will fill with variables from that area. The areas overlap
so for example the electric utility fuels appear in two areas, electricity and the fuel. The
variables are listed in the Variables Guide on the variables button above.

Click on a variable and it will be automatically added to the row with the correct settings. Once
the variable is added, it can be copied elsewhere. You may wish to change the spreadsheet
format for the C and D columns so that the format is reset for that row.

E.   Adding Relationships To The Spreadsheet

One of the advantages of the new spreadsheet approach is that you can add relationships that are
recalculated as part of the forecast. When you recalculate the model (F9), spreadsheet
recalculation is turned off, the spreadsheet data is disaggregated and sent to the simulation, the
simulation solves for a new forecast, the new forecast is aggregated to your settings, the
spreadsheet is updated, recalculation is turned back on, your relationships are updated.

Any relationship can be added that references the model results. However what one cannot do is
automatically feed your calculated results back to the model except by manually inserting new
values as model inputs.

❑   You may add a formula in any row NOT used by the model for data/forecast. This model
     template provide examples.

❑   In this version of the model ALL columns from **E to the right,** are cleared every time the
     aggregation or the forecast is changed! All formula in column D are copied to the right to the
     full extent of the forecast.

Thus enter the formula in columns C and D only. This means that stock calculations (and any backward referencing formula) are automatically extended to cover the forecast.

It also means that any side calculations you have must use the convention that they start in column C and can be copied to the right from column D.

Note that 'Days in Period' is one of the variables you may reference to scale results and this is used in the gasoline model and it has the same content in all aggregations and frequency's as the examples show.

Crude Oil Margins Example
In the gasoline model the margins for crude oil are calculated based upon the wholesale price of motor gasoline in row 19 and the crude cost in row 4.

=+C19-C$4*(0.0238095238095238)

This formula is entered in column C, copied to D and automatically copied into E, F etc ... for each period in the forecast.

Stock Calculations Example
In the gasoline model the stock draw calculation is based upon the stock levels in row 47 and the days in period in row 11.

=1000*((C$47-D$47)/D11)

This is entered into cell D47. Cell C47 will be NA() because there is no prior period in the data. Note that this gets around the frequency aggregation effects because row 11 on the gasoline always shows the days in period independent of whether this is a standard display or a difference from base style display.

F.   Advanced Graphic Features

Selecting a cell on either the working or comparison spreadsheets and clicking **Graph,** generates a graph of the entire data series in the units in which the display and frequency aggregations are set.

Graphic Templates
Graphic templates allow you to adjust the graphic characteristics and save that setting so that all future graphs have the same look.

There is an internal template for each forecast frequency setting that is the default for the graph. These can include the font and positioning of the legends, titles, axes and the addition of additional data.

To change the format of the graph, make sure that the **tool bar** is showing as above by clicking the menu tool bar item, then click on one of the control buttons to change the graph look.
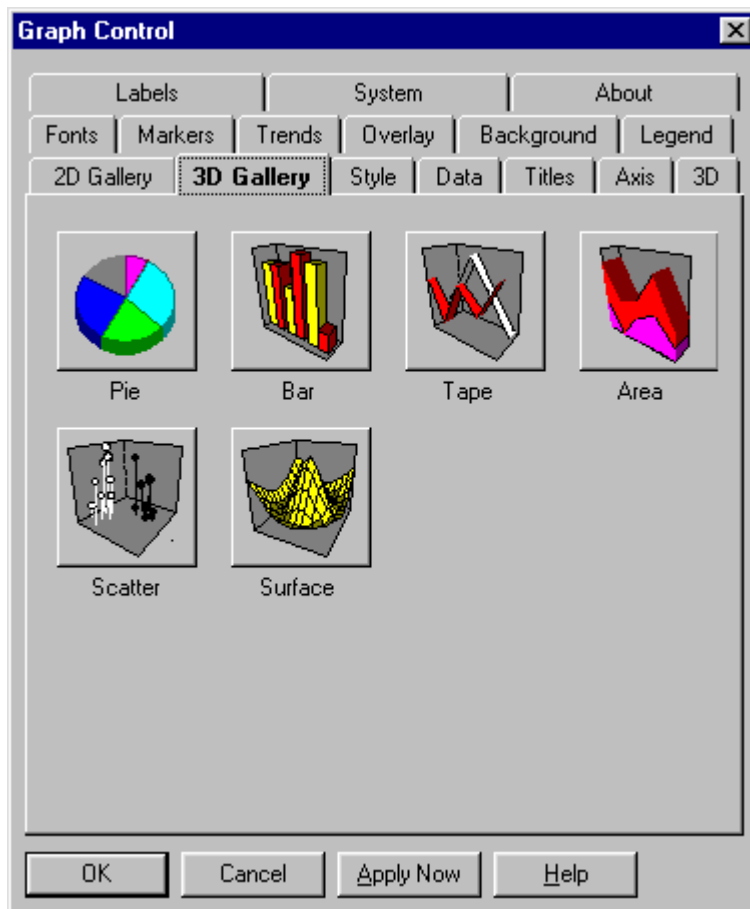
Each tab of the resulting control shows the settings for a feature. By changing these and clicking the **Apply Now** button the graph is immediately revised.

To save these changes as a new template for graphs of this frequency click **File/Save Template** and the default characteristics for this graph frequency are set.

These external templates are saved in a file **stm32.GSP**, a small text file. **If they become too overpowering, make sure you have a small file and delete it**. and the model will use its internal templates.

G.   *Macroeconomic Variables*

The Short-Term Energy Model makes use of a number of macroeconomic variables in order to project energy values. In order to avoid the appearance of a change in the GDP variable having

no effect on the value displayed for industrial production, a calculation is made of the implied effect of a change to one macroeconomic variable on all other macroeconomic variables shown in the display.

While the model does not contain a macro-model, it does contain a set of macroeconomic assumptions that are related by scale factors. Editing the value of one of the macro variables causes an implied change to related macroeconomic variables to be displayed. The scale factors are based upon a comparison of base, high and low economic forecasts.

IV. Comparing Scenarios
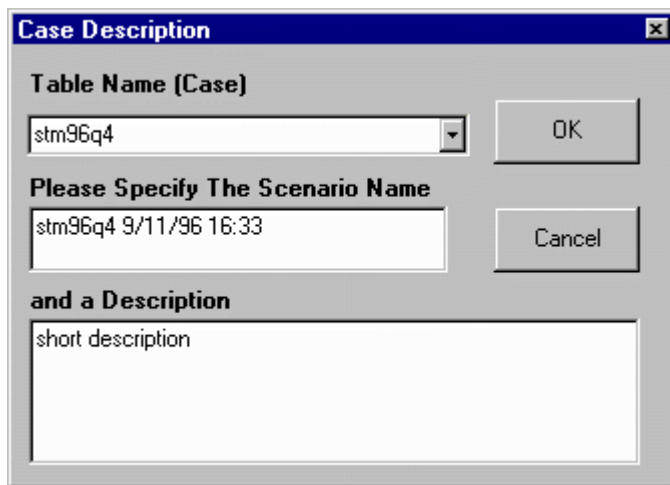
This chapter contains advanced two topics on comparing scenarios, that should be read in conjunction with the quick tout topic on comparing scenarios.

A.   *Adding New Scenarios For Comparisons*

The quick comparison section shows how to compare the current forecast with one of our saved base cases.

The current forecast can be added as a scenario to the current case, or you can create a new case. To do either of these things, proceed as follows:

On the **Comparison form**, Choose **File/Import Current Scenario** on the File menu, and provide additional information:

Table Name (Case) shows a combo box type list of all current tables. You may choose one of these tables or provide a new one by editing an entry. When you click on OK, either an existing table is located, or a new table is created in the STM32.mdb database, and the data are stored in that table.

Please Specify The Scenario Name provides the name that will appear against each of the variables extracted from this scenario in any future comparison. The combination "table name/scenario name" must be unique. If it is not you will be prompted for a changed scenario name. For example, since each case provided has a Base Case scenario, then you cannot add a new Base Case scenario unless you delete the existing one in that table. The combination is not case sensitive.

and a Short Description provides a short description of the scenario. This is displayed when managing the cases, to provide notes on what the scenario contains.

The STM32.mdb database stores about 150 variables for each scenario using only the visible rows, not the entire forecast database. Each scenario adds about 50 Kb to the cases database.

B.   *Managing Cases and Scenarios*

On the Comparison form, the menu option **File/Manage Cases** provides two options for editing the database of case/scenarios.

Edit Case Scenarios
Selecting this choice opens a form showing the case scenarios currently stored in the database.
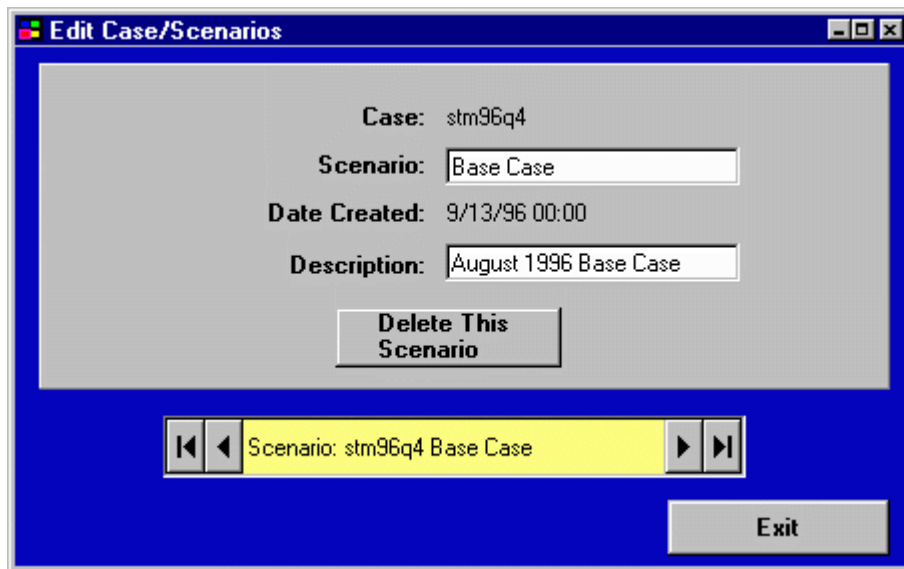
Clicking on the VCR buttons will navigate the case/scenario combinations and permit you to:

❑ **Edit** the scenario names and descriptions. This has the effect of editing the index name on all of the stored scenario data. This is the name that shows on the navigation bar and also on the comparison grid when the data are retrieved. You cannot generate a non-unique index name.

❑ **Delete** a scenario from the database. Click the Delete button and the scenario and all corresponding data will be removed from the database.

No provision is made to delete a case table corresponding to one of the buttons.

Compact The Case Database
After scenarios have been deleted the space in the database can be retrieved by selecting this option. To perform it successfully, space is required in the same directory corresponding to the original size of the STM32.mdb database. Once it has been completed the backup database STM32.bak can be deleted.

If however the compaction fails for lack of space, then the backup **stm32.bak** is available to be renamed. It will be at least 400 Kbytes since there are other files e.g. stm32.ini that also become a backup stm32.bak.

V. Saving & Restarting Scenarios

After customizing EIA's base case forecast you will wish to save the scenario so you can restart from it.

Saving A Scenario
To restart from a scenario you have to save it. To do this click **File/Scenario/Save Scenario on the menu bar.** You will be asked to specify a scenario name based upon the current scenario name and date, for example:
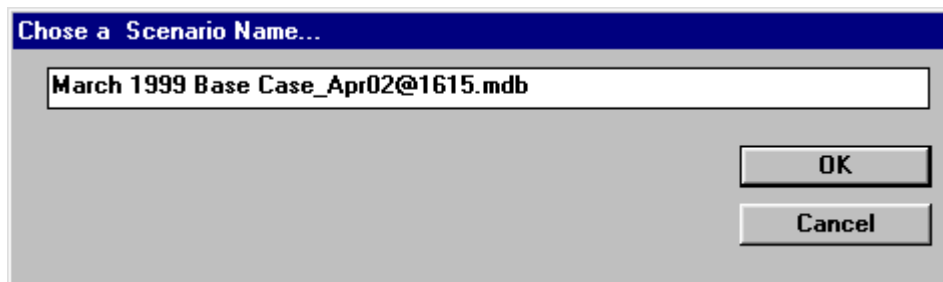
This will be the file name of the saved scenario and it will be placed in the **stem/saved** directory assuming that the PC-STEO application directory is **stem**.

The file is an MS Access 97 file with one row for every variable in the database, approximately 1300+ variables. They are laid out monthly.

Restoring A Scenario
To restore a scenario, click **File/Scenario/Load Scenario** on the menu bar, which will offer the currently stored scenarios in the above directory. Choose one and click OK. **Note you may not restore a file from an earlier forecast with a different forecast period. To do so will invalidate the forecast.**

The restored scenario allows you to pickup where you left off since it replaces every internal time series with the one read from the loaded scenario file.

However **File/Reset to Base Case**[3] will reset all "forecast data" (the last 24 months of data) back to the base case as defined by the initial **stm.dat** file from EIA. Thus restoring a scenario does not revise the base case forecast data, only the current internal working scenario and all history.

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[3]**Restore Base Case Data**
replaces all data with an internally stored copy of the base case. Note that this is set by the version of the model and comes from the data file (e.g. STM32.dat. If you have also loaded a scenario then choosing this option overwrites all of the scenario data with the original data in the .dat file.

VI. Working With External Spreadsheets

An external spreadsheet model is in principal more flexible in its access to graphics and data, so it is useful to link one to the PC-STEO to retrieve the forecast dynamically and perform other calculations externally.

If you wish to use the PC-STEO in conjunction with an external model then the only approach is to link the external model spreadsheet and the input spreadsheet **stm32.xls** so that changes in one are reflected in the other. The linkage is one way. Changes in the PC-STEO saved spreadsheet can be linked into a second spreadsheet, but **not** back to the PC-STEO. **Linkages back to the PC-STEO have to be made manually.**

Example
Suppose that an external **model.xls** referenced the PC-STEO forecast for gasoline contained in **stm32.xls**, and you wanted to make calculations in **model.xls** for changing assumptions and results in **stm32.xls**.

❑   Make the first scenario forecast using PC-STEO and save the forecast back to **stm32.xls**.

❑   Open your **model.xls** and **stm32.xls** and copy the cell range of values wanted from the appropriate sheet in **stm32.xls** to your model using **paste special** so that the linkage is established between the two spreadsheets. Your private forecast is now updated based on the PC-STEO data and forecast. Keep your private forecast **model.xls** open in your spreadsheet, but close **stm32.xls**.

❑   Next continue with PC-STEO and make further revisions to assumptions to generate a new scenario, and for each completed set of changes **save** the new version of **stm32.xls** (click the save button).

❑   Switch back to your private model and **refresh the link** to **stm32.xls**. Your private forecast is now also updated.

It is more efficient when the open spreadsheet can detect a change in its linked data-sources, or is automatically refreshed every few seconds.

VII.   Technical Summary

How It Works
The PC-STEO incorporates the models, solution techniques, and base case results used by EIA to forecast the Short-Term Energy Outlook published monthly on the web. EIA's forecasts use a mainframe computer that has access to the many data files needed to prepare the simulation database. The PC version uses the data and forecast results generated in the official mainframe run, but the database has been pared down to manageable size by omitting the estimation phase. The result is that the PC version will execute with 60 months of time-series, 36 months of data and 24 months of forecast.

The PC simulation is contained in a specially written compiled C solution module (stored in a DLL file). The user interface is written in Visual Basic. User revisions to exogenous variables are passed to the simulation module, where they are recalculated, and returned to the user interface. While simulating, the SAS and PC versions of the model execute the same equations using the same data. They differ principally in the solution technique. The PC version uses the same nonlinear simultaneous linear equations as the mainframe model, but they are solved by the Gauss-Seidel iterative technique, while the SAS package uses a Newton Rapheson technique.

Note that because of calculation procedure differences, the SAS simulation and the PC simulation results differ by small quantities. The errors are significant when applied to variables with small values such as import levels. For this reason, it should not be assumed that any user-defined scenario will produce precisely the same results that EIA might obtain when analyzing the same assumptions with the SAS version of the model.

As a user, you are free to enter implausible or impossible values for key variables. However robust the models may be, there will inevitably be values that exceed the range we contemplated when the models were designed, estimated, and validated. If the new values have prevented the model from converging a warning is issued, including basic iterations per month data and convergence tolerance information. The unconverged result will be displayed with a warning message. Any such results do not represent a full solution. Consult the model documentation for possible additional caveats on the use of the sectoral models.

The most recent version of the models documentation is maintained on the web site.

VIII.   Guide To Model Units & Variables

This chapter lists the variable and unit definitions used in the model.

A.   *Guide To Model Units*

Alternative unit choices available in the Property Settings are available for those units that have a non-unit scale factor. These are obtained by scaling a base unit. In these cases, the **base unit** is the unit on which the new unit described in field 1 is based by multiplying by the **scale** factor listed for that row.

Unit	Description	Base Unit	Scale
$/B	Dollars per 42-gal. from C/Gal	C/Gal.	0.42
$/BBl	Dollars per 42-gal. barrel	$/BBl	1
$/Gal	Dollars per gallon from C/Gal	C/Gal	0.01
$/MCF	Dollars per thousand cubic feet	$/MCF	1
$/MMBTU	Dollars per million Btu	$/MMBTU	1
$/Pass Mile	Dollars per Passenger Mile	$/Pass Mile	1
AD	AD	AD	1
BBTU/Day	Billion Btu per day	BBTU/Day	1
BCF	Billion cubic feet	BCF	1
BCFD	Billion cubic feet per day	BCFD	1
Billion $1992	Billion dollars, deflated to year-1992 basis	Billion $1992	1
BKWHD	Billion kilowatt-hours per day	BKWHD	1
BKWHD/E	Billion kilowatt-hours/day/million commercial employees	BKWHD/E	1
BKWHD/G	Billion kilowatt-hours/day/billion $1992 real GDP	BKWHD/G	1
BKWHD/K	Billion kilowatt-hours/day/million households	BKWHD/K	1
C/Gal	Cents per gallon	C/Gal	1
C/Kwhr	Cents per kilowatt-hour	C/Kwhr	1
C/Mile	Cents per mile	C/Mile	1
Days	Days	Days	1
Days Supply	Days Supply	Days Supply	1
Degree-Days	Degree-Days	Degree-Days	1
Dummy	Integer valued dummy variable (usually 1 or 0)	Dummy	1
Index, 1982-84=1.0	Index w/base period 1982-1984 normalized to 1.0	Index, 1982-84=1.0	1
Index, 1982=1.0	Index w/base period 1982 normalized to 1.0	Index, 1982=1.0	1
Index, 1992=1.0	Index w/base period 1992 normalized to 1.0	Index, 1992=1.0	1
Integer	Integer	Integer	1
M Rev tm/day	Million Revenue ton-miles/day	M Rev tm/day	1
MBD	Thousand 42-gallon barrels per day	MMBD	1000
Miles	Miles	Miles	1
Miles/Gallon	Miles/Gallon	Miles/Gallon	1
Mill. Mi/Day	Million miles per day	Mill. Mi/Day	1
Million Tons	Million Tons	Million Tons	1
Million Units	Million units	Million Units	1
Millions	Millions	Millions	1
MMB	Million 42-gallon barrels	MMB	1
MMBD	Million 42-gallon barrels per day	MMBD	1
MMBTU/BBL	Million Btu per 42-gallon barrel	MMBTU/BBL	1
MMBTU/MCF	Million Btu per thousand cubic feet	MMBTU/MCF	1
MMiD	Million miles per day	MMiD	1
MMST	Million short tons	MMST	1
MMSTD	Million short tons per day	MMTD	1
MMTM/Day	Airline Available Ton-miles per Day	MMTM/Day	1
MPG	Miles per gallon	MPG	1

Unit	Description	Base Unit	Scale
Mult. Factor	Multiplicative factor (usually a seasonal factor)	Mult. Factor	1
Passenger Miles	Airline Travel Passenger Miles	Passenger Miles	1
Percent	Percent	Percent	1
QBTU	Quadrillion Btu	QBTU	1
Ratio	Ratio	Ratio	1
T/M-Hr.	Tons per miner-hour	T/M-Hr.	1
TCF	Trillion cubic feet	BCF	0.001
TCFD	Trillion cubic feet per day	BCFD	0.001

B.   Guide to Model Variables

This table lists all model variable definitions available in the database stm32.mdb. These are accessed by using the row property of the spreadsheet, for an empty row.

Code	Label	Units	Add-factor	Weight
AAFLFUS	Airline Flight Length	Miles	AARYFAD	
ABRIPUS	Aviation gasoline blend components: refinery inputs	MMBD		
JS	Av. gas blend. components demand	MMBD		
ACTKFUS	Consumer Ticket Price Index	Index, 1982-84=1.0	ACTKFAD	RMZZPUS
AFUEUUS	Weighted cost: fossil fuels to electric utilities	$/MMBTU		ELEOPUS
AJDIFF	Coal production discrepancy	MMSTD		
ARTCPAD	Add factor: ARTCPUS	MMBD		
ARTCPUS	Asphalt/road oil demand	MMBD	ARTCPAD	
BALIT	Natural gas supply: balancing item (estimated demand-estimated supply) (final value)	BCFD	BALITAD	
CCNIPUS	Coal coke net imports	MMSTD		
CCOEPUS	Electricity sales: "other" less transportation	BKWHD		
CCPRPUS	Production of coal coke	MMSTD		
CCSDPUS	Coal coke producer stocks	MMST		
CCSDPUS1	CCSDPUS Lag1	MMST		
CCTCPUS	Demand for coal coke	MMSTD		
CCTCPUSX	Temporary variable for CCTCPUS	MMSTD		
CICPIUS	Consumer Price Index, All Urban Consumers	Index, 1982-84=1.0		
CLAJPUS	Coal supply-demand imbalance	MMSTD		
CLAJPUSX	Temporary variable for CLAJPUS	MMSTD		
CLAJTAR	Forecasted coal supply-demand imbalance	MMSTD		
CLCAPUS	Coal Fired Capacity - El. Util.	BKWHD		
CLCCPUS	Commercial sector coal demand	MMSTD		
CLDESTAR	Target Ut. Coal Stks. Days Supply	Days		
CLDKSTAR	Target Met. Coal Stks. Days Supply	Days		
CLDOSTAR	Target Oth. Coal Stks. Days Supply	Days		
CLEOPUS	Electricity generation: coal-fired, electric utility total (final value)	BKWHD	CLEOPAD	
CLEOPUSX	Electricity generation: coal-fired, electric utility total (initial value)	BKWHD	CLEOPAD	
CLEUDAD	Add factor: CLEUDUS	$/MMBTU		CLEUPUS

Code	Label	Units	Add-factor	Weight
CLEUDUS	Cost of coal to electric utilities	$/MMBTU	CLEUDAD	CLEUPUS
CLEUPUS	Electric utility coal demand	MMSTD		
CLEXPUS	Exports of coal	MMSTD		
CLFCPUS	Synfuel plant coal demand	MMSTD		
CLHCPUS	Residential and commercial coal demand	MMSTD		
CLIMPUS	Imports of coal	MMSTD		
CLIPPUS	Indpendent power producer coal demand	MMSTD		
CLKCPUS	Coking coal demand	MMSTD	CLKCPAD	
CLKCPUSX	Temporary variable for CLKCPUS	MMSTD		
CLMRHUS	Coal miner productivity in tons/hour	T/M-Hr.		
CLPRBASE	Base Coal Production	MMSTD		
CLPRPUS	Total Coal Production	MMSTD		
CLPRPUSX	Temporary variable for CLPRPUS	MMSTD		
CLPRPUSY	2nd Temporary variable for CLPRPUS	MMSTD		
CLSDPUS	Stocks of coal at producers and distributors	MMST		
CLSEPUS	Elec. utility coal Stocks	MMST		
CLSEPUSX	Temporary variable for CLSEPUS	MMST		
CLSEPUSY	2nd Temporary variable for CLSEPUS	MMST		
CLSKPUS	Coke plant coal stocks	MMST		
CLSKPUSX	Temporary variable for CLSKPUS	MMST		
CLSKPUSY	2nd Temporary variable for CLSKPUS	MMST		
CLSOPUS	Retail and General industry coal stocks	MMST		
CLSOPUSX	Temporary variable for CLSOPUS	MMST		
CLSOPUSY	2nd Temporary variable for CLSOPUS	MMST		
CLSTPUS	Total secondary coal stocks	MMST		
CLTCPUS	Total coal demand	MMSTD		
CLWCPUS	Waste Coal supplied for consumption	MMSTD		
CLXCPUS	Other industrial coal demand excluding synfuel plants	MMSTD		
CLYCPUS	Other industrial coal demand including synfuel plants	MMSTD		
CLZCPUS	Retail and general industry coal demand	MMSTD		
COCQPUS	Strategic Petroleum Reserve: fill rate from foreign sources	MMBD		
CODIPAD	Add factor: CODIPUS	MMBD		
CODIPUS	Gross inputs to crude distillation units (final value)	MMBD		
CODIPUSX	Gross inputs to crude distillation units (initial value)	MMBD	CORIPAD	
CODQPUS	Strategic Petroleum Reserve: fill rate from domestic sources	MMBD		
COKEBAL	Temporary measure of coal coke supply-demand imbalance	MMSTD		
COLOPUS	Crude oil: losses	MMBD		
CONIPUS	Crude oil: net imports (including SPR)	MMBD		
CONQPUS	Strategic Petroleum Reserve net withdrawal rate	MMBD		
CONXPUS	Crude oil: net imprts (excluding SPR)	MMBD		
COPRPUS	Crude oil: total U.S. production	MMBD		
COQMPUS	Strategic petroleum reserve imports	MMBD		

Code	Label	Units	Add-factor	Weight
CORIPAD	Add factor: CORIPUS	MMBD		
CORIPUS	Crude oil: refinery inputs of crude oil (final value)	MMBD		
CORIPUSX	Crude oil : refinery Inputs (initial value)	MMBD		
COSQPUS	Strategic Petroleum Reserve end-of-month stocks	MMB		
COSXPUS	Crude oil: end-of-month stocks	MMB	COSXPAD	
COTCPUS	Unprocessed crude oil demand	MMBD		
COUNPUS	Crude oil: unaccounted	MMBD		
COWQPUS	Strategic Petroleum Reserve withdrawal rate for domestic sale	MMBD		
CPM	Real fuel cost per mile	C/Gal		MVVMPUS
CPTCPUS	COTCPUS + PPTCPUS	MMBD		
CURIPUS	Refinery inputs of crude and unfinished oils: CORIPUS + UORIPUS	MMBD		
D_294	Ice Storms, February 1994	Dummy		
D_9308N9	Dummy Variable for August & September 1993; hot weather & down nukes in SW	Dummy		
D_HAND	Dummy Variable for Hurricane Andrew, September & October 1992	Dummy		
D2RCPAD	Add factor: D2RCPUS	MMBD		
D2RCPUS	Distillate fuel: no. 2 heating oil, retail price weight	MMBD		
D2RCUAD	Add factor: D2RCUUS	C/Gal		D2RCPUS
D2RCUUS	No. 2 heating oil, residential price	C/Gal		D2RCPUS
D2WHPUS	No. 2 heating oil (wholesale): demand	MMBD		
D2WHUAD	Add factor: D2WHUUS	C/Gal		DFRCPUS
D2WHUUS	No.2 heating oil wholesale price	C/Gal	D2WHUAD	DFRCPUS
D2WHUUSA	No.2 heating oil wholesale price, deseasonalized	C/Gal		
D2WHUUSS	Seasonal factor: D2RCUUS	Mult. Factor		
D2WPPAD	Add factor: D2WHPUS	MMBD		
D81	=1 if DATE lt 8112; 0 otherwise	Dummy		
D8302	=1 if DATE eq 8302; 0 otherwise	Dummy		
D8401ON	= 1 if January 1984 or later, 0 otherwise	Dummy		
D8412	=1 if DATE eq 8412; 0 otherwise	Dummy		
D8501	=1 if DATE eq 8501; 0 otherwise	Dummy		
D8603	=1 if Date eq 8603; 0 otherwise	Dummy		
D8701	=1 if DATE eq 8701; 0 otherwise	Dummy		
D8801	=1 if DATE eq 8801; 0 otherwise	Dummy		
D8912	= 1 if December 1989, 0 otherwise	Dummy		
D89ON	= 1 if date le 198912; 0 otherwise	Dummy		
D9001	=1 if DATE eq 9001; 0 otherwise	Dummy		
D90ON	= 1 if January 1990 or later, 0 otherwise	Dummy		
D9101ON	= 1 if January 1991 or later, 0 otherwise	Dummy		
D92	= 1 if year= 1992; 0 otherwise	Dummy		
D9204	=1 if DATE eq 9204; 0 otherwise	Dummy		
D9301	= 1 if January 1993, 0 otherwise	Dummy		
D93ON	= 1 if date ge 199301; 0 otherwise	Dummy		
D94	= 1 if year= 1994; 0 otherwise	Dummy		
D9401	=1 if DATE eq 9401; 0 otherwis	Dummy		

Code	Label	Units	Add-factor	Weight
D94MJ	=1 if May or June 1994; 0 otherwise	Dummy		
D94ON	= 1 if January 1994 or later, 0 otherwise	Dummy		
D9505ON	= 1 if date ge 199505; 0 otherwise	Dummy		
D95ON	=1 if DATE gt 9412; 0 otherwise	Dummy		
DFACPAD	Add factor: DFACPUS	MMBD		
DFACPUS	Distillate fuel: highway diesel demand (final value)	MMBD	DFACPAD	
DFACPUSX	Distillate fuel: highway diesel demand (initial value)	MMBD		
DFCCPAD	Add factor: DFCCPUS	MMBD		
DFCCPUS	Distillate fuel: commercial demand (final value)	MMBD	DFCCPAD	
DFCCPUSX	Distillate fuel: commercial demand (initial value)	MMBD		
DFEPPUS	Distillate fuel: electric utility demand (deliveries basis)	MMBD		
DFHCPUS	Demand for distillate fuel oil residential and commercial	MMBD		
DFICPAD	Add factor: DFICPUS	MMBD		
DFICPUS	Distillate fuel: industrial demand (final value)	MMBD	DFICPAD	
DFICPUSX	Distillate fuel: industrial demand (initial value)	MMBD		
DFICPUSZ	Distillate fuel: industrial demand (secondary value)	MMBD		
DFNIPUS	Distillate fuel: net imports	MMBD		
DFNUPUS	Distillate fuel: total demand less elec. utility receipts (final value)	MMBD		
DFNUPUSX	Distillate fuel: total demand less elec. utility receipts (initial value)	MMBD		
DFPSPUS	Distillate fuel: stocks	MMB	DFPSPAD	
DFPSPUSA	DFPSPUS, seasonally adjusted	MMB	DFPSPAD	
DFR89	= 1 if date le 198912; 0 otherwise	MMBD		
DFRCPAD	Add factor: DFRCPUS	MMBD		
DFRCPUS	Distillate fuel: residential demand (final value)	MMBD	DFRCPAD	
DFRCPUSX	Distillate fuel: residential demand (initial value)	MMBD		
DFROBUS	Distillate fuel: refinery output, in Btus	QBTU		
DFROPAD	Add factor: DFROPUS	MMBD		
DFROPUS	Distillate fuel: refinery output (final value)	MMBD		
DFROPUSX	Distillate fuel: refinery output (initial value)	MMBD	DFROPAD	
DFTCPUS	Distillate fuel: total demand (final value)	MMBD		
DFTCPUSA	Distillate Demand Seasonally Adjusted	MMBD		
DFTCPUSX	Distillate fuel: total demand (initial value)	MMBD		
DFYLD	Distillate fuel: refinery yield	MMBD		
DKEOPUS	Electricity generation: distillate fuel oil-fired, electric utility total	BKWHD		
DKEUPUS	Distillate fuel: electric utility consumption total	MMBD		
DKSEPUS	Distillate fuel: electric utility stocks, end period	MMB		
DRVP90	DATE gt 9003 and lt 9008	Dummy		
DS2	= 1 if April 1981 to June 1981, 0 otherwise	Dummy		
DSHIELD	DATE eq 98Q4	Dummy		
DSRTUUS	Distillate fuel: retail no. 2 diesel fuel price, incl tax	C/Gal		DFACPUS
DSTCPAD	Add factor: DSTCUUS	C/Gal		DFACPUS
DSTCPUS	Distillate fuel: diesel fuel demand, retail price weight	MMBD		

Code	Label	Units	Add-factor	Weight
DSTCUAD	Add factor: DSTCUUS	C/Gal		DFACPUS
DSTCUUS	Distillate fuel: no.2 diesel fuel price, ex tax	C/Gal		DFACPUS
DSTORM	=1 if DATE eq 9101 and 9102; 0 otherwise	Dummy		
DSTXFUS	Federal Motor fuel tax on diesel fuel	C/Gal		DFACPUS
DSTXSUS	State motor fuel tax on diesel fuel	C/Gal		DFACPUS
DSTXUUS	No. 2 diesel fuel taxes combined state and federal	C/Gal		DFACPUS
DUM89	=1 if DATE gt 8910 and lt 9001; 0 otherwise	Dummy		
DUM9602	=1 if February 1996:; 0 otherwise: Low Inventories and Expecation of High HDD's	Dummy		
DUMCOLD	=1 if DATE eq 8912 or 9001; 0 otherwise	Dummy		
DUMYRPP	Annual ratio of PPRIPUS/MGROPUS	Ratio		
DY9697	= 1 if February 1996 through August 1997; 0 otherwise	Dummy		
ELEOPUS	Electricity generation: electric utility total, all fuel sources	BKWHD		
ELNIPUS	Electricity net imports	BKWHD		
ELNSPUS	Electricity net sales to electric utilities from nonutility generators	BKWHD		
EMCMPUS	Commercial Employment	Millions		
EOFPPUS	Fuel ethanol: field production	MMBD		
EONIPUS	Fuel ethanol: net imports	MMBD		
EOPRPAD	Add factor: EOPRPUS	MMBD		
EOPRPUS	Fuel ethanol: total production	MMBD	EOPRPAD	
EOPSPUS	Fuel ethanol: end-of-month stocks	MMB		
EOTCPUS	Fuel ethanol: demand	MMBD		
ESCMPUS	Electricity sales by electric utilities: commercial sector	BKWHD	ESCMPAD	
ESCMPUSQ	Commercial electricity sales by electric utilities/commercial employment (EMCMPUS)	BKWHD/E	ESCMPAD	
ESICPUS	Electricity sales by electric utilities: industrial sector	BKWHD	ESICPAD	
ESNTPUS	Electricity generation: at nonutilities for own use	BKWHD		
ESOTPUS	Electricity sales by electric utilities: "other:" total minus (residential + commercial + industrial)	BKWHD	ESOTPAD	
ESOTPUSQ	"Other" electricity sales by electric utilities/real GDP (GDPQXUS)	BKWHD/G		
ESRCPUS	Electricity sales by electric utilities: residential sector	BKWHD	ESRCPAD	
ESRCPUSQ	Residential electricity sales by electric utilities/housing stock (KQHMPUS)	BKWHD/K		
ESRCUAD	Add factor: ESRCUUS	C/Kwhr		ESRCPUS
ESRCUUS	Residential electricity price	C/Kwhr	ESRCUAD	ESRCPUS
ESTCPUS	Electricity sales by electric utilities: total all sectors	BKWHD		
ESTXPUS	Electricity demand: total including nonutilities for own use (ESTCPUS+ESNTPUS)	BKWHD		
ETOTSUP	Electricity supply: net total, including nonutility net sales and net imports (ELEOPUS+ELNSPUS+ELNIPUS)	BKWHD		
ETTCPAD	Add factor: ETTCPUS	MMBD		
ETTCPUS	Demand for ethane	MMBD		
ETTCPUSA	ETTCPUS, seasonally adjusted	MMBD		
ETTCPUSS	Seasonal factor: ETTCPUS	Mult. Factor		

Code	Label	Units	Add-factor	Weight
ETXXSUP	Electricity supply: gross total, including nonutility sources and net imports (ELEOPUS+NTEOPUS+ELNIPUS)	BKWHD		
FETCPAD	Add factor: FETCPUS	MMBD		
FETCPUS	Petrochemical feedstocks demand	MMBD	FETCPAD	
GASVAR	Natural gas supply: beginning period "excesss" storage (NGUSPUS-NGUSPNM)	BCF		
GDPDIUS	GDP deflator	Index, 1992=1.0		
GDPQXUS	Real Gross Domestic Product	Billion $1992		
GEEOPUS	Electricity generation: from geothermal, electric utility total	BKWHD	GEEOPAD	
GWEOPUS	Electricity generation: geothermal and other (GEEOPUS+WWEOPUS+WNEOPUS), electric utility total	BKWHD		
HYEOPAC	Electricity generation: from hydropower, electric utility, Pacific region	BKWHD		
HYEOPL9	Electricity generation: from hydropower, electric utility, "other" regions (U.S. total minus Pacific region)	BKWHD		
HYEOPUS	Electricity generation: from hydropower, electric utility, total	BKWHD		
I87RXUS	Private fixed investment	Billion $1992		
JFFAAUS	Commercial Demand for Jet Fuel	MMBD		
JFNIBUS	Jet fuel: net imports, in Btus	QBTU		
JFNIPUS	Jet fuel: net imports	MMBD		
JFOTHUS	Demand for Other Jet Fuel	MMBD		
JFPSPUS	Jet fuel: end-of-month stocks	MMB	JFPSPAD	
JFPSPUSA	JFPSPUS seasonally adjusted	MMB		
JFPSPUSS	JFPSPUS seasonal adjustment factor	Mult. Factor		
JFROPAD	Add factor: JFROPUS	MMBD		
JFROPUS	Jet fuel: refinery output (final value)	MMBD	JFROPAD	
JFROPUSX	Jet fuel: refinery output (initial value)	MMBD	JFROPAD	
JFTCPAD	Add factor: JFTCPUS	MMBD		
JFTCPUS	Total Demand for Jet Fuel	MMBD	JFTCPUS	
JFYLD	Jet fuel: refinery yield	Ratio		
JKESPAD	Add factor: JKESPUS	MMBD		
JKESPUS	Kerosene jet fuel demand by refiners to end-users	MMBD		
JKMPPUS	Refinery Output of Military Kerosene Jet Fuel	MMBD		
JKTCUAD	Add factor: JKTCUUS	C/Gal		JFTCPUS
JKTCUUS	Price Of Kerosene Based Jet Fuel	$/Gal	JKTCUAD	JFTCPUS
JKTCUUSA	JKTCUUS seasonally adjusted	C/Gal		
JKTCUUSS	seasonal factor for Price of kerosene based jet fuel -> JKTCUUS	Mult. Factor		
K1	Coke consumption/coke-based raw steel production	Ratio		
K2	Coke net imports/coke consumption	Ratio		
K3	Coke stocks/coke consumption	Ratio		
K4	Coking coal consumption/coke production	Ratio		
K5	Electric arc raw steel production/Total raw steel production	Ratio		

Code	Label	Units	Add-factor	Weight
KQHMPUS	Housing Stock	Million Units		
KRDRXUS	Change in manufacturing inventories	Billion $1992		
KSTCPUS	Kerosene Demand	MMBD		
LF	Airline Load Factor: RMZZPUS/RMZTPUS	Ratio		
LGFPPUS	LPGs: field production	MMBD		
LGNIPUS	LPGs: net imports	MMBD		
LGPSPUS	LPGs: end-of-month stocks	MMB	LGPSPAD	
LGRIPAD	Add factor: LGRIPUS	MMBD		
LGRIPUS	LPGs: refinery input	MMBD		
LGROPAD	Add factor: LGROPUS	MMBD		
LGROPUS	LPGs: refinery output (final value)	MMBD		
LGROPUSX	LPGs: refinery output (final value)	MMBD		
LGTCPUS	Total LPG Demand	MMBD		
LGTCPUSA	LGTCPUS seasonally adjusted	MMBD		
LGTCPUSS	Seasonal factor: LGTCPUS	MMBD		
LGYLD	LPGs: refinery yield	Ratio		
LUTCPUS	Lubricants Demand	MMBD		
LXTCPAD	Add factor: LXTCPUS	MMBD		
LXTCPUS	Demand for LPG's, excluding ethane	MMBD	LXTCPAD	
LXTCPUSA	LXTCPUS seasonally adjusted	MMBD		
LXTCPUSS	seasonal factor for Demand for LPG's, excluding ethane -> LXTCPUS	Mult. Factor		
MBFPPAD	Addfactor: MBFPPUS	MMBD		
MBFPPUS	Motor gasoline blend components: field production, final value	MMBD		
MBFPPUSX	Motor gasoline blend components: field production, initial value	MMBD		
MBNIPUS	Motor gasoline blend components: net imports	MMBD		
MBOLPUS	Other refinery inputs: PPRIPUS + LGRIPUS + PSRIPUS	MMBD		
MBPSPUS	Motor gasoline blend components: end-of-month stocks	MMB		
MBRIPAD	Add factor: MBRIPUS	MMBD		
MBRIPUS	Motor gasoline blend components: refinery inputs	MMBD		
MBTCPUS	M.G. B/C Demand	MMBD		
MGDAYSP	Motor Gasoline Days of Supply	Days		
MGEIAUS	Retail Gasoline Price, Incl. Tax--all grades	C/Gal	MGUCUAD	MGTCPUSX
MGEIRUS	Gasoline Unleaded Price	$/Gal	MGUCUAD	MGTCPUSX
MGFPPUS	Finished motor gasoline: field production, final value	MMBD		
MGFPPUSX	Finished motor gasoline: field production, initial value	MMBD		
MGNIPUS	Finished motor gasoline: net imports	MMBD		
MGOCPUS	Oxygenated Gasoline Demand	MMBD		
MGPSPUS	Finished motor gasoline: end-of-month stocks	MMB	MGPSPAD	
MGPSPUSA	MGPSPUS seasonally adjusted	MMB		
MGPSPUSS	Seasonal factor: MGPSPUS	Mult. Factor		
MGROPAD	Add factor: MGROPUS	MMBD		

Code	Label	Units	Add-factor	Weight
MGROPUS	Finished motor gasoline: refinery output (final value)	MMBD	MGROPAD	
MGROPUSA	MGROPUS, seasonally adjusted	MMBD		
MGROPUSS	Seasonal factor: MGROPUS	Mult. Factor		
MGROPUSX	Finished motor gasoline: refinery output (initial value)	MMBD	MGROPAD	
MGTC1US	MGEIRUS minus MGTXUUS (ex-tax pump price)	C/Gal	MGUCUAD	MGTCPUSX
MGTC2US	Temporary value for MGEIAUS	$/Gal	MGUCUAD	MGTCPUSX
MGTCAUS	MGUCUUS minus MGTXUUS (ex-tax pump price)	C/Gal		MGTCPUSX
MGTCPAD	Add factor: MGTCPUSX	MMBD		
MGTCPUS	Demand for finished motor gasoline	MMBD		
MGTCPUSX	Demand for finished motor gasoline (consistent basis)	MMBD	MGTCPAD	
MGTSPUS	Total Gasoline Stocks	MMB		
MGTXFUS	Federal Motor fuel tax on motor gasoline	C/Gal		MGTCPUSX
MGTXSUS	State motor fuel tax on motor gasoline	C/Gal		MGTCPUSX
MGTXUUS	Motor gasoline fuel taxes combined state and federal	C/Gal		MGTCPUSX
MGUCUAD	Add factor: MGUCUUS	C/Gal		MGTCPUSX
MGUCUUS	Motor gasoline, all grades and all services, retail price, BLS survey	C/Gal	MGUCUAD	
MGUCUUSA	MGUCUUS seasonally adjusted	C/Gal		
MGUCUUSS	Seasonal factor: MGUCUUS	Mult. Factor		
MGWHPUS	Finished motor gasoline: volume sales for resale (wholesale)	MMBD		
MGWHUAD	Add factor: MGWHUUS	C/Gal		MGTCPUSX
MGWHUUS	Wholesale price of motor gasoline	C/Gal	MGWHUAD	MGTCPUSX
MGWHUUSA	MGWHUUS, seasonally adjusted	C/Gal		
MGWHUUSS	Seasonal factor: MGWHUUS	Mult. Factor		
MGWHUUSX	MGWHUUS less cost RFPs and Oxygenates	C/Gal	MGWHUAD	MGTCPUSX
MGWPPAD	Add factor: MGWHPUS	C/Gal		MGTCPUSX
MGYLD	Finished motor gasoline: refinery yield	Ratio		
MITCPUS	ARTCPUS + MZTCPUS + PCTCPUS + SGTCPUS	MMBD		
MOGP	Real seasonalized price of motor gasoline	C/Gal		MGTCPUSX
MPG	Miles per gallon for all vehicles	MPG		MVVMPUS
MPGX	Miles per gallon for all vehicles (consistent basis).	MPG		
MTNIPUS	MTBE: net imports	MMBD		
MTPRPUS	MTBE: production	MMBD		
MTPSPUS	MTBE: end-of-month stocks	MMB		
MTTCPUS	MTBE: demand	MMBD		
MVVMPAD	Add factor: VMT	MMiD		
MVVMPUS	Vehicle Miles Traveled	Mill. Mi/Day	MVVMPAD	0
MZTCPAD	Add factor: MZTCPUS	MMBD		
MZTCPUS	Miscellaneous products demand	MMBD	MZTCPAD	
NGACPAD	Add factor: NGACPUSX	BCFD		
NGACPUS	Natural gas demand: pipeline gas total (final value)	BCFD	NGACPAD	
NGACPUSX	Natural gas demand: pipeline gas total (initial value)	BCFD		
NGCCPAD	Add factor: NGCCPUSX	BCFD		
NGCCPUS	Natural gas demand: commercial sector demand per	BCFD	NGCCPAD	

Code	Label	Units	Add-factor	Weight
	day			
NGCCPUSX	Natural gas demand: commercial sector demand per commercial employee	BCFD		
NGCCUAD	Add factor: NGCCUUS	$/MCF		NGCCPUS
NGCCUUS	Price of natural gas, commercial sector	$/MCF	NGCCUAD	NGCCPUS
NGEOPUS	Electricity generation: gas-fired, electric utility total (final value)	BKWHD	NGEOPAD	
NGEOPUSX	Electricity generation: gas-fired, electric utility total (initial value)	BKWHD		
NGEUDAD	Add factor: NGEUDUS	$/MMBTU		NGEUPUS
NGEUDUS	Cost of natural gas to electric utilities	$/MMBTU	NGEUDAD	NGEUPUS
NGEUDUSA	Deseasonalized price of natural gas to electric utilities	$/MMBTU		NGEUPUS
NGEUPUS	Natural gas: electric utility consumption total (final value)	BCFD		
NGEUPUSX	Natural gas: electric utility consumption total (initial value)	BCFD		
NGEXPAD	Add factor: NGEXPUS	BCFD		
NGEXPUS	Natural gas demand: exports of natural gas	BCFD		
NGICPUS	Natural gas demand: industrial sector incl. pipeline and lease&plant	BCFD		
NGICUAD	Add factor: NGICUUS	$/MCF		
NGICUUS	Price of Natural Gas to the Industrial Sector	$/MCF	NGICUAD	NGICPUS
NGIMMX	Natural gas supply: Canadian gas import capacity	BCFD		
NGIMPAD	Add factor: NGIMPUS	BCFD		
NGIMPUS	Natural gas supply: gross imports of natural gas, U.S. total (final value)	BCFD		
NGIMPUSX	Natural gas supply: gross imports of natural gas, U.S. total (initial value)	BCFD	NGIMPAD	
NGINPAD	Add factor: NGINPUSZ	BCFD		
NGINPUS	Natural gas demand: industrial sector demand per day (final value)	BCFD	NGINPAD	
NGINPUSX	Natural Gas Inputs -- constrained	BCFD		
NGINPUSZ	Natural gas demand: industrial sector demand per day/QSIC(gas-weighted output)	BCFD		
NGIPPUS	Natural gas demand: independent power producers	BCFD		
NGLPPAD	Add factor: NGLPPUSX	BCFD		
NGLPPUS	Natural gas demand: lease & plant (final value)	BCFD	NGLPPAD	
NGLPPUSX	Natural gas demand: lease & plant (initial value)	BCFD		
NGMPPAD	Add factor: NGMPPUS	BCFD		
NGMPPUS	Natural gas supply: marketed (wet) gas production	BCFD		
NGNIPUS	Natural gas supply: net imports of natural gas	BCFD		
NGNOPUS	Electricity supply: gas-fired generation, nonutility generators, U.S. total	BCFD		
NGNUKUS	Thermal conversion factor: NGNUPUS	MMBTU/MCF		
NGNUPUS	Natural gas demand: nonutility generators, U.S. total	BCFD		
NGNWCALC	Net withdr. of nat. gas from und. storage, calculated as gross withd. less gross inj.	BCFD		
NGNWFAC	Muiltiplicative factor: NGNWPUS/NGNWCALC	BCFD		
NGNWPUS	Net withdrawals of natural gas from underground storage	BCFD		

Code	Label	Units	Add-factor	Weight
NGPRMX	Natural gas productive capacity	BCFD	NGPRMXAD	
NGPRPAD	Add factor: NGPRPUS	BCFD		
NGPRPUS	Dry natural gas production (final value)	BCFD	NGPRPAD	
NGPRPUSX	Dry natural gas production (initial value)	BCFD	NGPRPAD	
NGRCPAD	Add factor: NGRCPUSX	BCFD		
NGRCPUS	Natural gas demand: residential sector demand per day	BCFD	NGRCUAD	
NGRCPUSX	Natural gas demand: residential sector demand per household per day	BCFD		
NGRCUAD	Add factor: NGRCUUS	$/MCF		
NGRCUUS	Residential natural gas price	$/MCF	NGRCUAD	NGRCPUS
NGSFPAD	Add factor: NGSFPAD	BCFD		
NGSFPUS	Natural gas supply: supplemental gaseous fuels	BCFD		
NGSIPAD	Add factor: NGSIPUSX	BCFD		
NGSIPUS	Natural gas storage: gross storage injections (final value)	BCFD		
NGSIPUSX	Natural gas storage: gross storage injections (initial value)	BCFD		
NGSPUAD	Add factor: NGSPUUS	$/MMBTU		
NGSPUUS	Spot natural gas wellhead price	$/MMBTU	NGSPUAD	NGPRPUS
NGTCPUS	Natural gas demand: total U.S. (final value)	BCFD		
NGTCPUSX	Natural gas demand: total U.S. (initial value)	BCFD		
NGUSPAD	Add factor: NGUSPUSX	BCF		
NGUSPNM	Natural gas in underground storage: "normal" levels	BCF		
NGUSPUS	Natural gas storage: U.S. total underground storage (final value)	BCF		
NGUSPUSX	Natural gas storage: U.S. total underground storage (initial value)	BCF	NGUSPAD	
NGUSPUSY	Natural gas storage: U.S. total underground storage (intermediate value)	BCF		
NGVHPUS	Natural gas demand: Estimated natural gas vehicle use	BCFD		
NGWGPUS	Working gas in Storage	BCF		
NGWPUAD	Add factor: NGWPUUS	$/MCF		NGPRPUS
NGWPUUS	Natural gas wellhead price	$/MCF	NGWPUAD	NGPRPUS
NGWSPAD	Add factor: NGWSPUSX	BCFD		
NGWSPUS	Withdrawals from natural gas underground storage (final value)	BCFD		
NGWSPUSX	Withdrawals from natural gas underground storage (initial value)	BCFD		
NLPRPAD	Adfactor: NLPRPUS	MMBD		
NLPRPUS	Natural gas plant liquid production	MMBD		
NTEOPUS	Electricity generation: nonutility total, all fuel sources	BKWHD		
NUEOPAC	Electricity generation by nuclear power, Pacific Region	BKWHD		
NUEOPUS	Electricity generation by nuclear power, total U.S.	BKWHD		
OHPSPAD	Add factor: OHPSPUS	MMB		
OHPSPUS	Other hydrocarbons and alcohol: end-of-month stocks	MMB		

Code	Label	Units	Add-factor	Weight
OHRIPAD	Add factor: OHRIPUS	MMBD		
OHRIPUS	Other hydrocarbons and alcohol: field production	MMBD		
OPFRAC	Oxygenated/Reformulated Fraction	Percent		
ORCAPUS	Monthly U.S. refinery capacity	MMBD		
ORUTCUS	Refinery utilization rate: CODIPUS / ORCAPUS	Ratio		ORCAPUS
ORUTCUSA	ORUTCUS seasonally adjusted	Ratio		
ORUTCUSS	ORUTCUS seasonal adjustment factor	Mult. Factor		
OTTCPUS	Other Pet. Demand	MMBD		
OTTSPUS	Other Pet. Product Stocks	MMB	PSPSPAD	
OXFRAC	Oxygenated Fraction	Percent		MGTCPUSX
OXPSPAD	Add factor: OXPSPUS	MMB		
OXPSPUS	Oxygenates: end-of-montrh stocks	MMB		
OXRIPAD	Add factor: OXRIPUS	MMBD		
OXRIPUS	Oxygenates: refinery inputs	MMBD		
OZTCPAD	Add factor: OZTCPUS	MMBD		
OZTCPUS	Oxygenates: total supply, MTBE equiv.	MMBD		
PAEOPUS	Electricity generation: oil-fired, electric utility total (final value)	BKWHD		
PAEOPUSX	Electricity generation: oil-fired, electric utility total (initial value)	BKWHD		
PAGLPAD	Add factor: PAGLPUS	MMBD		
PAGLPUS	Refinery processing gain	MMBD		
PANIPUS	Net imports of petroleum products	MMBD		
PAPRP48	Crude oil production: lower 48 States	MMBD	PAPR48AD	
PAPRPAK	Crude oil production: Alaska	MMBD	PAPRAKAD	
PARIPUS	Total refinery inputs	MMBD		
PAROBAL	Refinery output balancing item	MMBD		
PAROPUS	Total refinery output (final value)	MMBD		
PAROPUSX	Total refinery output (initial value)	MMBD		
PASXPUS	Total petroleum end-of-month stocks (excluding SPR)	MMB		
PATCPUS	Total petroleum product demand	MMBD		
PATCPUSX	Total petroleum product demand on a consistent basis.	MMBD		
PATSPUS	Total petroleum product stocks	MMB		
PCEOPUS	Electricity generation: petroleum coke-fired, electric utility total	BKWHD		
PCEUPUS	Petroleum coke: electric utility consumption total	MMBD		
PCTCPAD	Add factor: PCTCPUS	MMBD		
PCTCPUS	Petroleum coke demand	MMBD	PCTCPAD	
PPFPPAD	Add factor: PPFPPUS	MMBD		
PPFPPUS	Pentanes plus: field production	MMBD		
PPNIPUS	Pentanes plus: net imports	MMBD		
PPNLSUS	Annual average PPFPPUS / NLPRPUS	Ratio		
PPPSPAD	Add factor: PPPSPUS	MMB		
PPPSPUS	Pentanes plus: end-of-month stocks	MMB	PPPSPAD	
PPRIPAD	Add factor: PPRIPUS	MMBD		

Code	Label	Units	Add-factor	Weight
PPRIPUS	Pentanes plus: refinery inputs	MMBD		
PPTCPAD	Add factor: PPTCPUS	MMBD		
PPTCPUS	Pentanes plus demand	MMBD	PPTCPAD	
PRESPAD	Add factor: PRESPUS	MMBD		
PRESPUS	Retail volumes of propane	MMBD		
PRPSPAD	Add factor: PRPSPUS	MMB		
PRPSPUS	Propane: end-of-month stocks	MMB		
PRTCPAD	Add factor: PRTCPUS	MMBD		
PRTCPUS	Demand for propane	MMBD	PRTCPAD	
PRTCUAD	Add factor: PRTCUUS	C/Gal		PRTCPUS
PRTCUUS	Retail price of propane	C/Gal		PRTCPUS
PSFPPUS	Other petroleum: field production	MMBD		
PSNIPUS	Other petroleum products: net impots	MMBD		
PSPSPUS	Other petroleum products: end-of-month stocks	MMB	PSPSPAD	
PSRIPUS	Other petroleum products: refinery inputs	MMBD		
PSROPAD	Add factor: PSROPUS	MMBD		
PSROPUS	Other petroleum products: refinery output (final value)	MMBD		
PSROPUSX	Other petroleum products: refinery output (initial value)	MMBD		
PSTCPUS	Total "Other" petroleum products demand	MMBD		
PSTCPUSA	PSTCPUS, seasonally adjusted	MMBD		
PSTCPUSS	Seasonal factor: PSTCPUS	Mult. Factor		
PSYLD	Other petroleum products: refinery yield	Ratio		PSROPUS
QCOAL	Electric utility consumption of coal in Btus	BBTU/Day		
QNGAS	Electric utility consumption of gas in Btus	BBTU/Day		
QRESD	Electric utility consumption of residual fuel oil in Btus	BBTU/Day		
QSIC	Ind. Prod. Index: Gas-Wtd. Composite	Index, 1992=1.0		
RACPPUS	Refiner volume of crude oil RACPPUS = CODIPUS	MMBD		
RACPUAD	Add factor: RACPUUS	$/BBl		CODIPUS
RACPUUS	Refiner acquisition cost for crude oil (composite)	$/BBl	RACPUAD	CODIPUS
RAIMPUS	Crude oil + unfinished oil net imports: CONXPUS + UONIPUS	MMBD		
RAIMUUS	Refiner acquisition cost for crude oil (imports)	$/BBl		RAIMPUS
RFACPAD	Add factor: RFACPUS	MMBD		
RFACPUS	Transportation Demand for Residual Fuel Oil	MMBD		
RFACPUSX	Transportation Demand for Residual Fuel Oil -- Initial Value	MMBD		
RFCCPAD	Add factor: RFCCPUS	MMBD		
RFCCPUS	Commercial Demand for Residual Fuel Oil	MMBD	RFCCPAD	
RFCCPUSX	Commercial Demand for Residual Fuel Oil -- Initial Value	MMBD		
RFCCPUSZ	Commercial Demand for Residual Fuel Oil -- Constrained Value	MMBD		
RFEOPUS	Electricity generation: residual fuel oil-fired, electric utility total	BKWHD		
RFEPPUS	Residual fuel: shipments to electric utilities	MMBD		

Code	Label	Units	Add-factor	Weight
RFESPAD	Add factor: RFESPUS	MMBD		
RFESPUS	Residual fuel oil: demand by refiners to end-users	MMBD		
RFEUDUS	Cost of residual fuel oil to electric utilities	$/MMBTU		RFEUPUS
RFEUPUS	Residual fuel: electric utility consumption total	MMBD		
RFFRAC	Reformulated Fraction	Percent		MGTCPUSX
RFICPAD	Add factor: RFICPUS	MMBD		
RFICPUS	Industrial Demand for Residual Fuel Oil	MMBD	RFICPAD	
RFICPUSX	Industrial Demand for Residual Fuel Oil -- Initial Value	MMBD		
RFICPUSZ	Industrial Demand for Residual Fuel Oil -- Constrained Value	MMBD		
RFNIPUS	Residual fuel oil: net imports	MMBD		
RFNUPUS	Non-utility demand for residual fuel oil	MMBD		
RFNUPUSX	Non-utility demand for residual fuel oil -- Initial Value	MMBD		
RFPSPUS	Residual fuel oil: end-of-month stocks	MMB	RFPSPAD	
RFPSPUSA	RFPSPUS seasonally adjusted	MMB		
RFPSPUSS	RFPSPUS seasonal adjustment factor	Mult. Factor		
RFROPAD	Add factor: RFROPUS	MMBD		
RFROPUS	Residual fuel oil: refinery output (final value)	MMBD	RFROPAD	
RFROPUSX	Residual fuel oil: refinery output (initial value)	MMBD	RFROPAD	
RFSEPUS	Residual fuel: electric utility stocks, end period	MMB		
RFTCPUS	Demand for residual fuel oil	MMBD		
RFTCUAD	Add factor: RFTCUUS	C/Gal		RFTCPUS
RFTCUUS	Refiner price to end users: residual fuel oil	C/Gal	RFTCUAD	RFTCPUS
RFTCZUS	Thermal conversion factor: RFTCPUS	MMBTU/BBL		
RFYLD	Residual fuel oil: refinery yield	Ratio		RFROPUS
RMZT	Airline Available ton-miles	MMiD	RMZTPAD	
RMZTPAD	Add factor: RMZT	MMiD		
RMZTPUS	Airline Available Ton-miles (=RMZT)	MMTM/Day		
RMZZ	Airline Revenue ton-miles	MMiD		
RMZZPAD	Add factor: RMZZ	MMiD		
RMZZPUS	Airline Travel (=RMZZ)	M Rev tm/day	RMZZPAD/EXP	
RSBFPUS	Basic oxygen furnace raw steel production	MMSTD		
RSELPUS	Electric arc raw steel production	MMSTD		
RSPRPUS	Total raw steel production	MMSTD	RSPRPAD	
RSPRPUSA	RSPRPUS seasonally adjusted	MMSTD		
RVPI	= 1 if April - August, 1989 - 1991, 0 otherwise	Dummy		
RVPII	= 1 if April - August, 1992 - 1994, 0 otherwise	Dummy		
RVPIII	= 1 if April - August, 1995 and later years, 0 otherwise	Dummy		
RVPIIIW	= 1 if September 1995 or later and RVPIII=0, 0 otherwise	Dummy		
RVPIIW	= 1 if September 1992 - March 1995 and RVPII=0, 0 otherwise	Dummy		
RVPIW	= 1 if September 1989 - March 1992 and RVPI=0, 0 otherwise	Dummy		
SGTCPAD	Add factor: SGTCPUS	MMBD		

Code	Label	Units	Add-factor	Weight
SGTCPUS	Still gas demand	MMBD	SGTCPAD	
STRIKE1	= 1 if December 1977 to March 1978, 0 otherwise	Dummy		
STRIKE2	= 1 if April 1981 or May 1981, 0 otherwise	Dummy		
TDLOFUS	Electricity supply: Losses and unaccounted for, percent of electric utility sales	Ratio		
TDLOPUS	Electricity supply: Losses and unaccounted for	BKWHD	TDLOPBAD	
TETCBUS	Total Energy Demand	QBTU		
TIME	Time Trend	Integer		
TREND84	= 1 to n where n = number of observations starting with January 1984	Integer		
TROEPUS	Electricity Sales by electric utilities: estimated transportation sector sales	BKWHD		
TSEOPUS	Electricity generation: total including nonutility sources (ELEOPUS+NTEOPUS)	BKWHD		
UONIPUS	Unfinished oils: net imports	MMBD		
UOPSPUS	Unfinished oils: end-of-month stocks	MMB		
UORIBUS	Unfinished oils: refinery inputs, in Btus	QBTU		
UORIPAD	Add factor: UORIPUS	MMBD		
UORIPUS	Unfinished oils: refinery inputs (final value)	MMBD		
UORIPUSX	Unfinished oils: refinery inputs (initial value)	MMBD		
UOTCPAD	Add factor: UOTCPUS	MMBD		
UOTCPUS	Reclassified unfinished oils	MMBD	UOTCPAD	
VMT	Vehicle miles traveled	MMiD	MVVMPAD	
WNEOPUS	Electricity generation: wind and solar-powered, electric utility total	BKWHD		
WNNOPUS	Electricity generation: wind and solar-powered, nonutility total	BKWHD		
WP57IUS	Producer Price Index: Petroleum	Index, 1982=1.0		
WPCPIUS	Producer Price Index	Index, 1982=1.0		
WWEOPUS	Electricity generation: wood and waste-powered, electric utility total	BKWHD		
YD87OUS	Real Personal Disposable Income	Billion $1992		
ZGHDPUS	Heating degree-days: U.S. gas-wtd.	Degree-Days		
ZO20IUS	Ind. Prod. Index: Food	Index, 1992=1.0		
ZO26IUS	Ind. Prod. Index: Paper	Index, 1992=1.0		
ZO28IUS	Ind. Prod. Index: Chemicals	Index, 1992=1.0		
ZO29IUS	Ind. Prod. Index: Petroleum Refining	Index, 1992=1.0		
ZO32IUS	Ind. Prod. Index: Stone, Clay, Glass	Index, 1992=1.0		
ZO33IUS	Ind. Prod. Index: Primary Metals	Index, 1992=1.0		
ZOMNIUS	Ind. Prod. Index: Manufacturing	Index, 1992=1.0		
ZOSIIUS	Coal weighted production index	Index, 1992=1.0		
ZOTOIUS	Index of Total Maufacturing Production	Index, 1992=1.0		
ZSAJQUS	Number of Days in a Month	Days		
ZWCDPUS	Cooling Degree-Days: U.S. Population-Wtd.	Degree-Days		
ZWHDDNO	Heating degree-days: deviations from normal, Northeast, Oct--Apr.	Degree-Days		
ZWHDDNO1	Heating degree-days: deviations from normal, Northeast (Oct.-Mar.)	Degree-Days		

Code	Label	Units	Add-factor	Weight
ZWHDPMA	Heating Degree-Days: Mid Atlantic	Degree-Days		
ZWHDPNE	Heating degree-Days: New England	Degree-Days		
ZWHDPNO	Heating Degree-Days: Northeast	Degree-Days		
ZWHDPUS	Heating degree-days: U.S. pop.-wtd.	Degree-Days		
ZWHNPUS	Heating degree-days.: U.S. pop.-wtd. normals	Degree-Days		